

WHAT IS CLAIMED IS:

Sub A1  
1. A process for the wet chemical treatment of semiconductor wafers with treatment liquids, comprising the steps of firstly treating the semiconductor wafers with an aqueous HF solution;

then treating the semiconductor wafers with an aqueous  $O_3$  solution; and

then treating the semiconductor wafers with a liquid selected from the group consisting of water and an aqueous HCl solution;

whereby these treatment steps forming a treatment sequence  $B_2$ .

2. The process as claimed in claim 1,

wherein the treatment sequence  $B_2$  is preceded by a treatment  $B_1$  of the semiconductor wafers with an aqueous <sup>SC-1</sup> ~~ser~~ solution.

3. The process as claimed in claim 1,

wherein the treatment sequence  $B_2$  is followed by a treatment  $B_3$  comprising drying the semiconductor wafers.

4. The process as claimed in claim 3,

wherein the treatment of the semiconductor wafers is sequenced according to the term  $m \cdot (B_1 + B_2) + B_3$ ,

m being an integer number and the treatment  $B_1$  and the treatment sequence  $B_2$  being carried out in succession, and

this taking place m times, before the drying treatment  $B_3$  is performed.

5. The process as claimed in claim 1,

wherein in treatment sequence  $B_2$ , the aqueous HF solution contains HF in a concentration of from 0.001% to 2% by weight and optionally HCl in a concentration of up to 2% by weight and optionally a surfactant; and

wherein all percents by weight are based upon the total solution weight.

6. The process as claimed in claim 1,

wherein in treatment sequence  $B_2$ , the aqueous  $O_3$  solution contains  $O_3$  in a concentration of from 1 ppm to 30 ppm and is optionally exposed to megasonic waves.

7. The process as claimed in claim 1,

wherein the treatment liquid used last in the treatment sequence  $B_2$  contains ozone and is optionally exposed to megasonic waves.

8. The process as claimed in claim 3,

wherein the drying treatment is carried out using a step selected from the group consisting of centrifuging, using hot water, using isopropanol, and using marangoni principle.

9. The process as claimed in claim 2,

A wherein in treatment B<sub>1</sub> the aqueous <sup>SC-1</sup>~~ser~~ solution contains a liquid selected from the group consisting of NH<sub>4</sub>OH and H<sub>2</sub>O<sub>2</sub>, and TMAH (= tetramethylammonium hydroxide) and H<sub>2</sub>O<sub>2</sub>.

10. The process as claimed in claim 1, comprising

carrying out each treatment with a treatment liquid in a bath.

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